

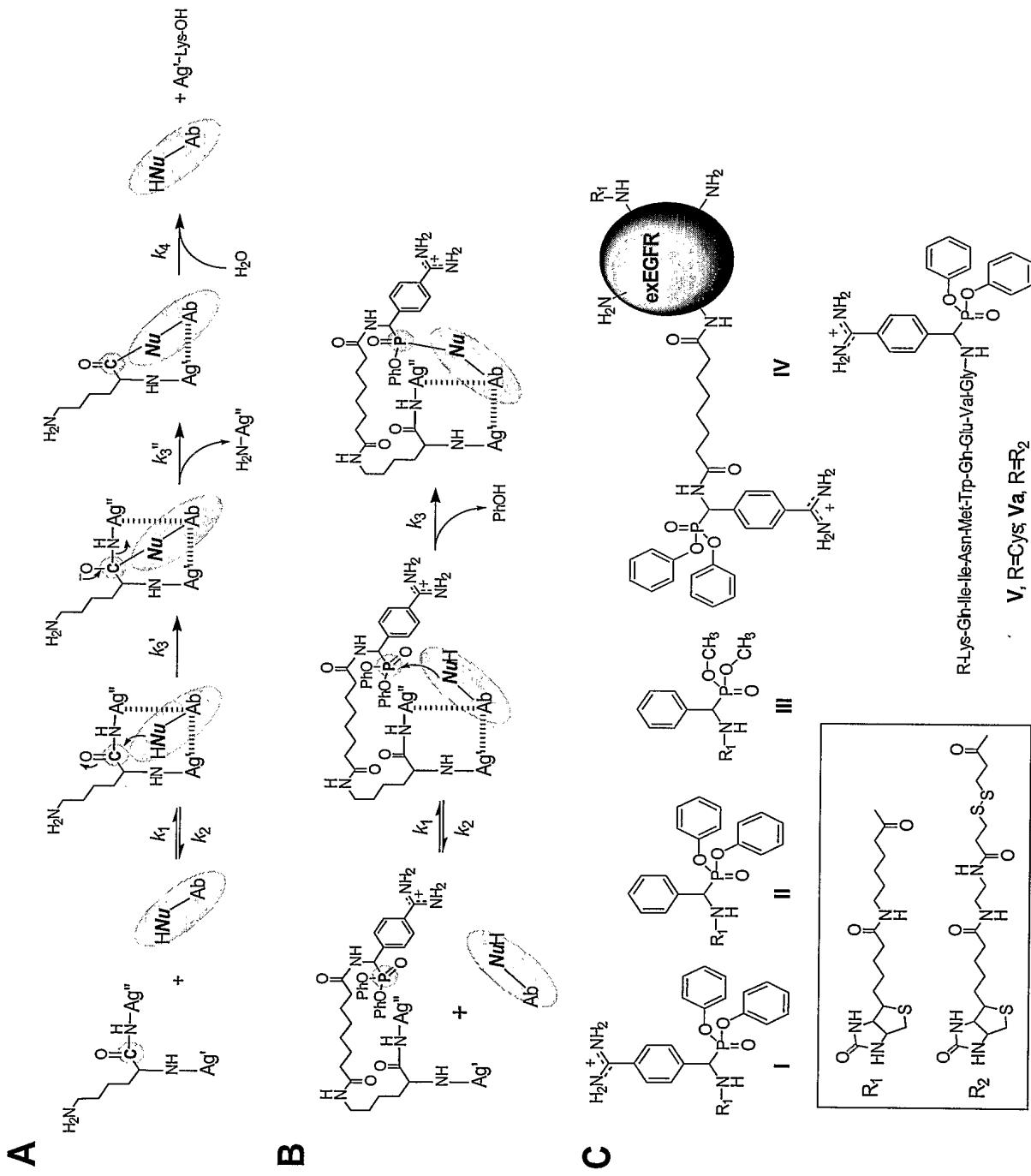
**Fig 1**

Fig 2

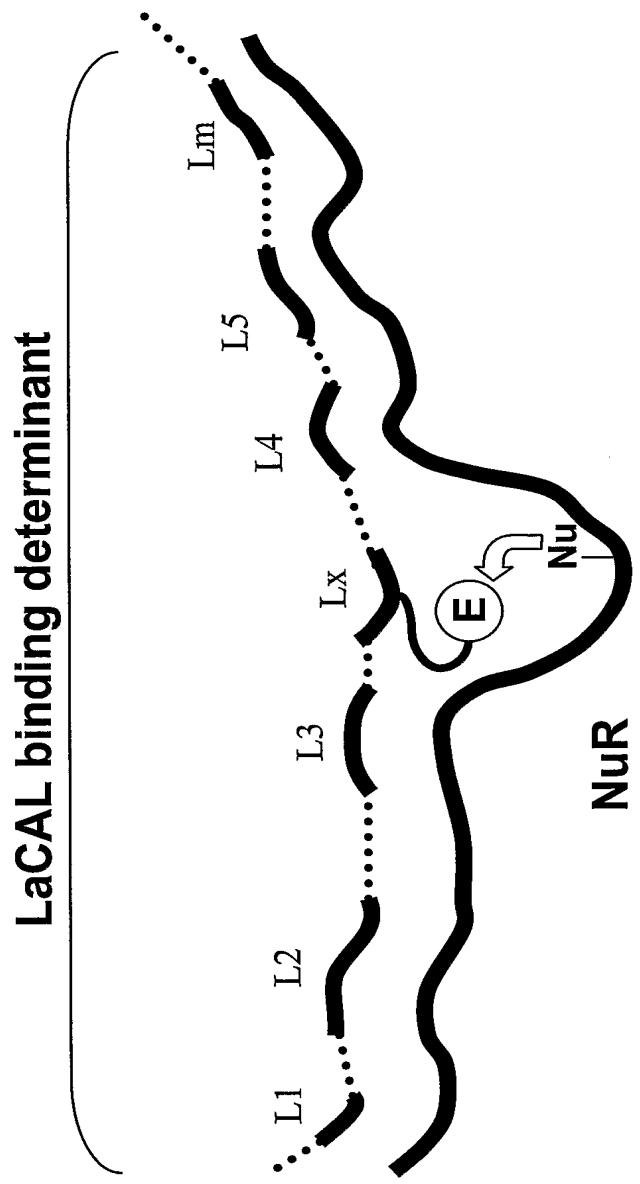


Fig 3

# *Catalysis and covalent binding energies of proteins*

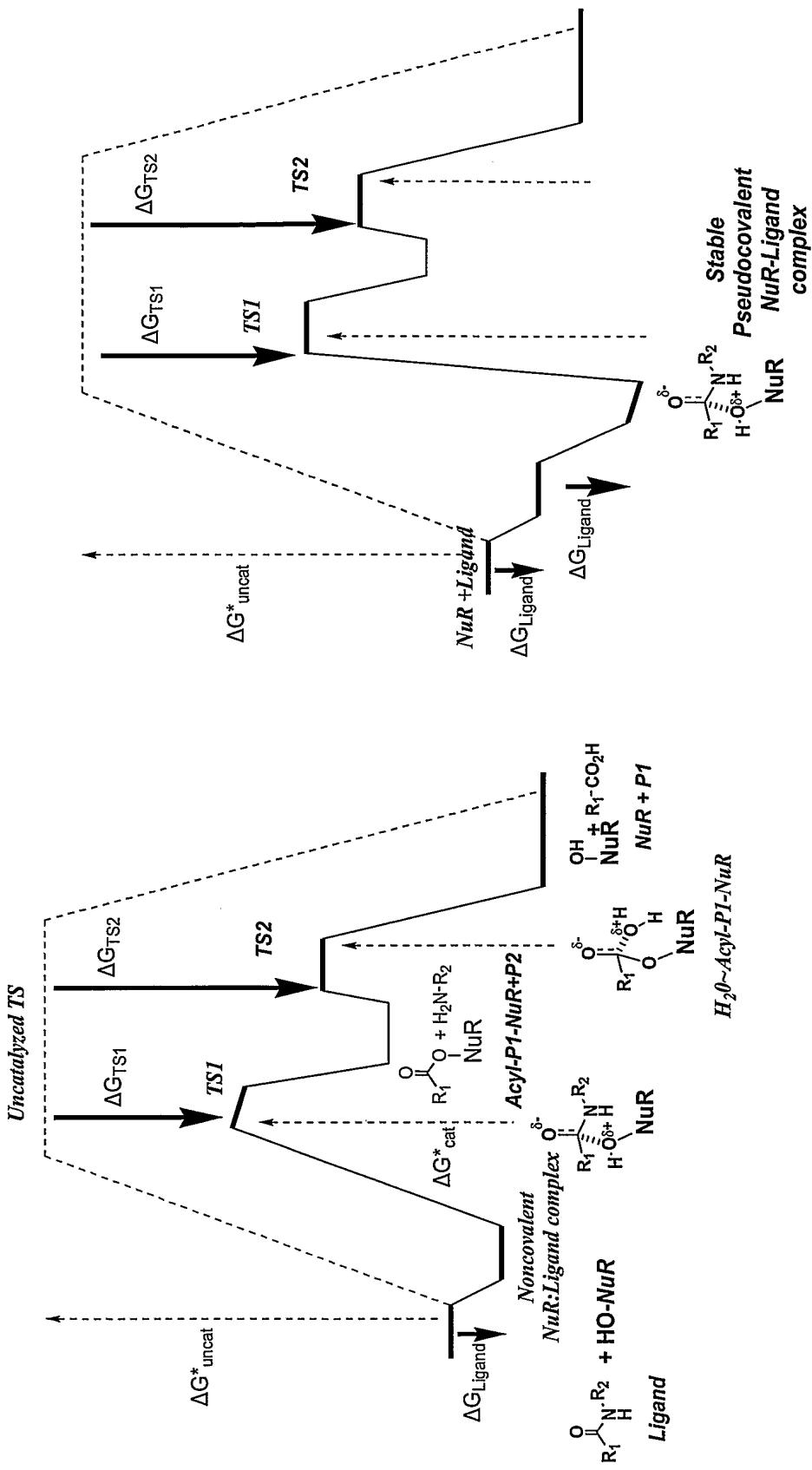


Fig 4

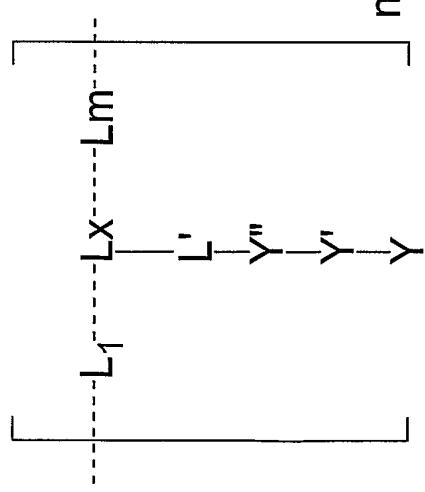
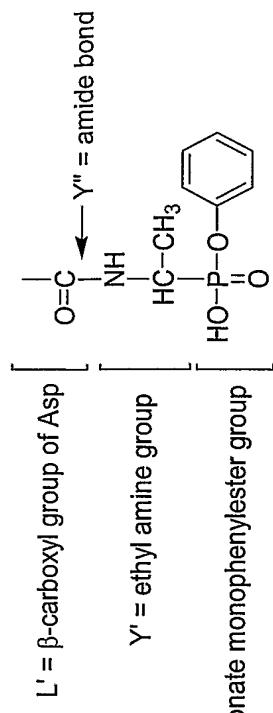
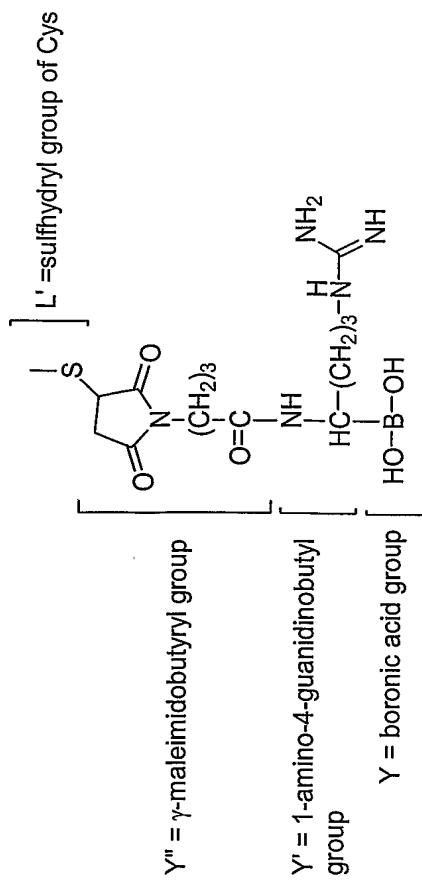
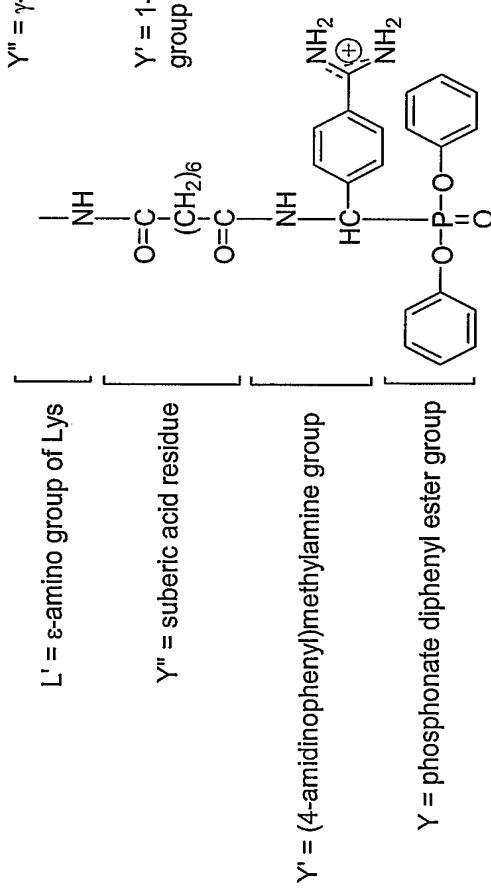
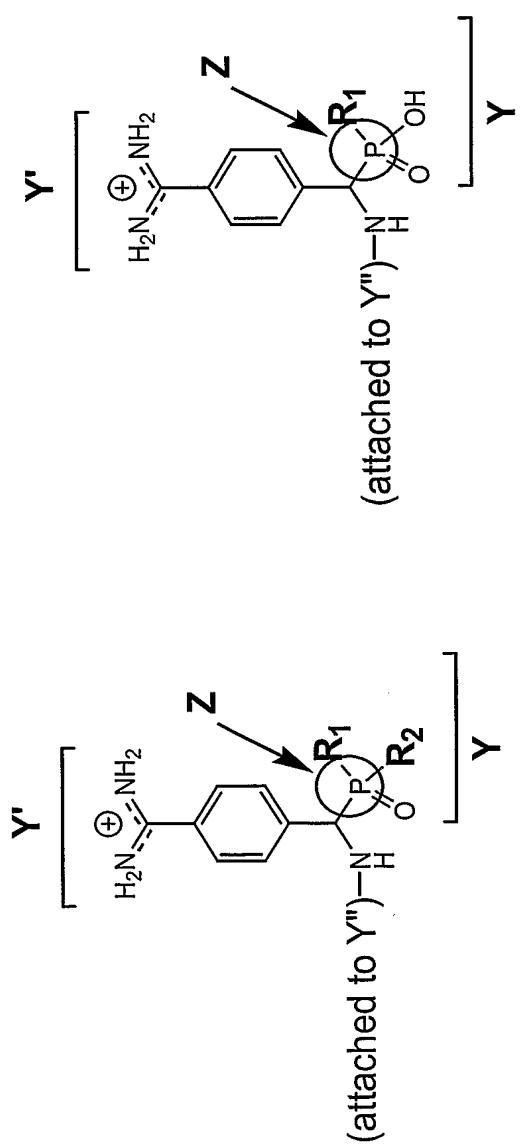
**General structure of LaCAL****•  $L'-Y''-Y'-Y$ , Example 1****•  $L'-Y''-Y'-Y$ , Example 3****•  $L'-Y''-Y'-Y$ , Example 2**

Fig 5A



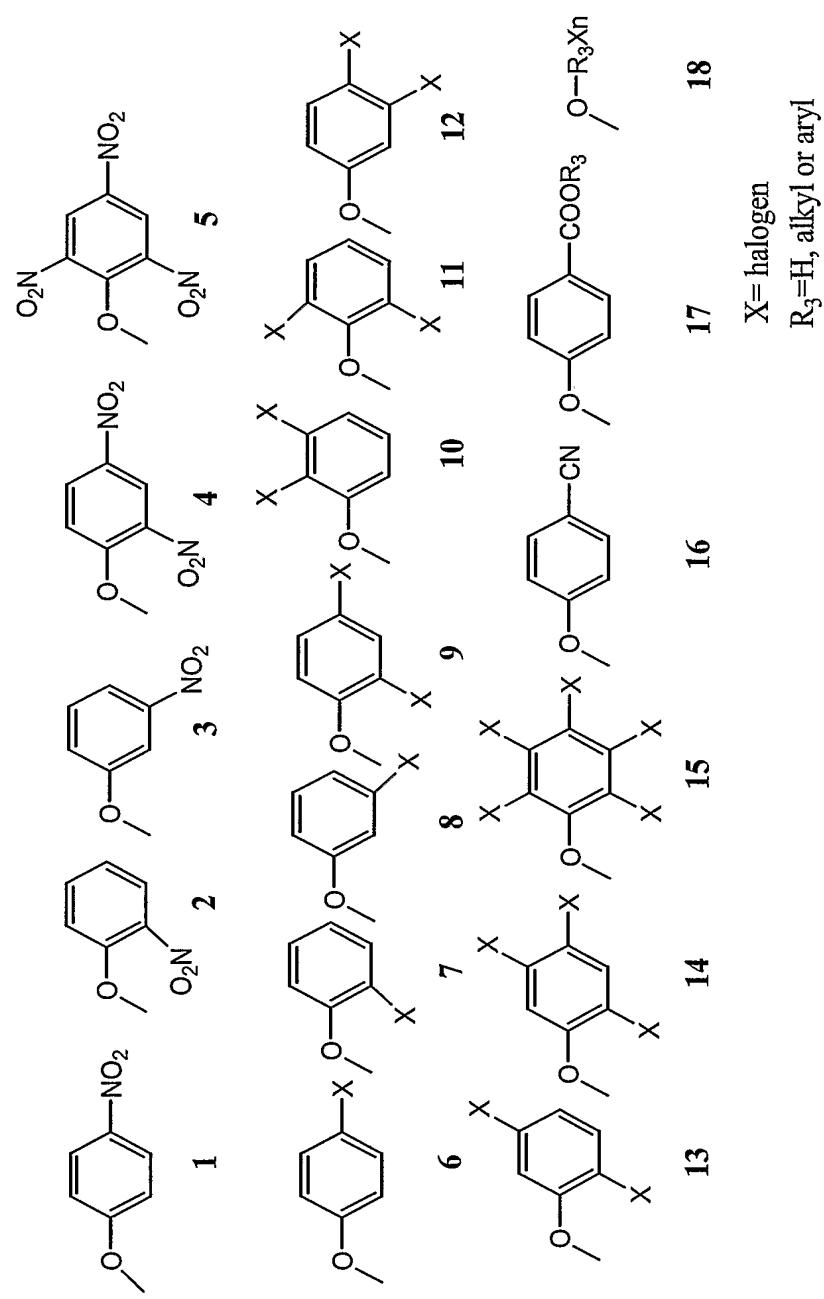
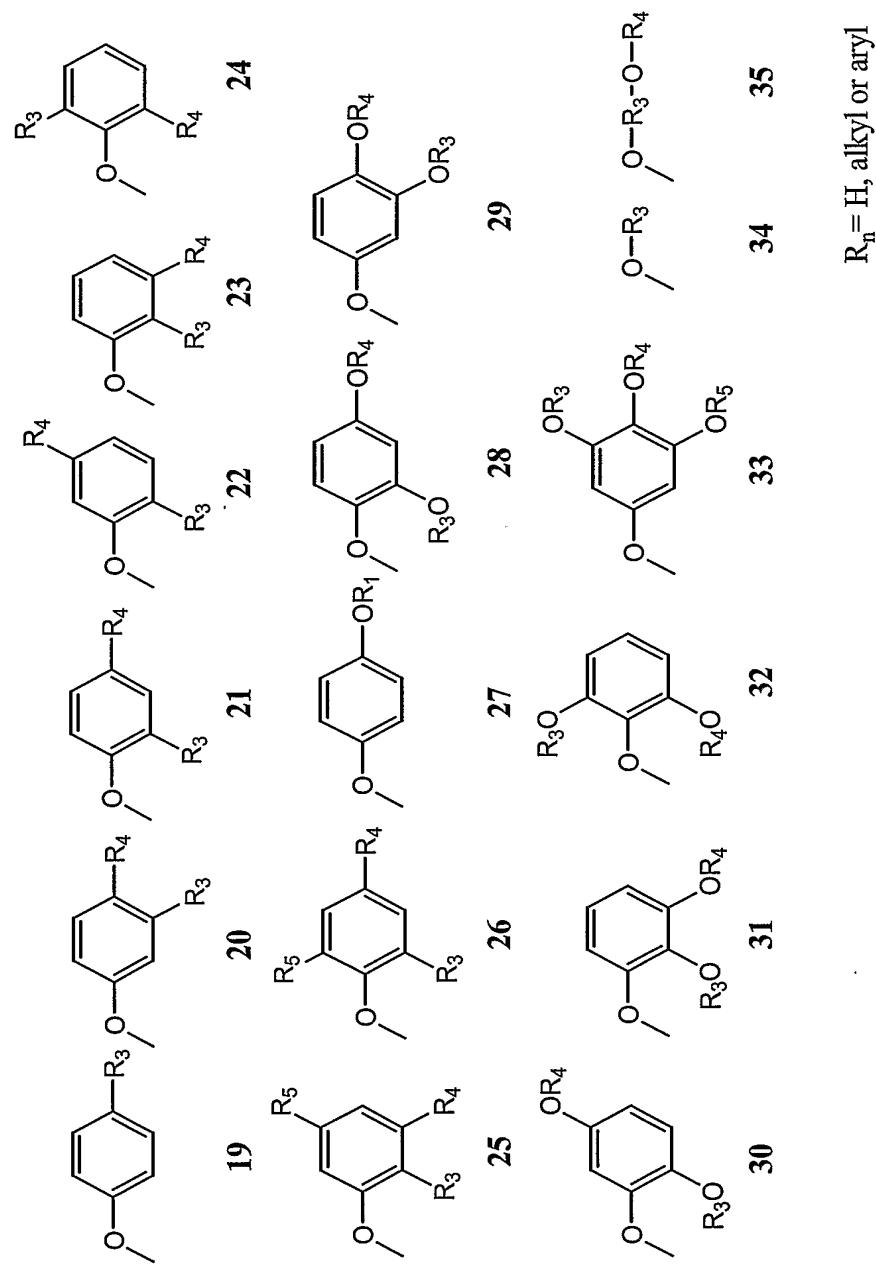
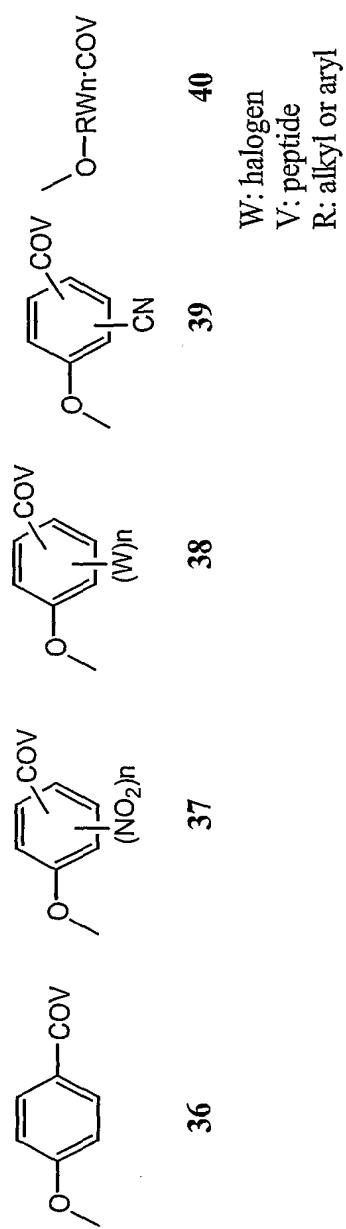


Fig 5B

Fig 5C



## A. Electron withdrawing substituents with peptide extension



## B. Electron donating substituents with peptide extension

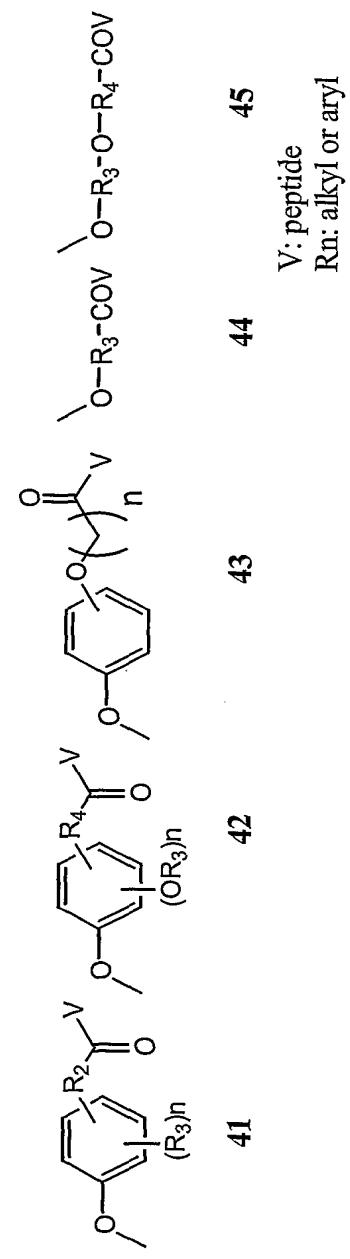


Fig 5D

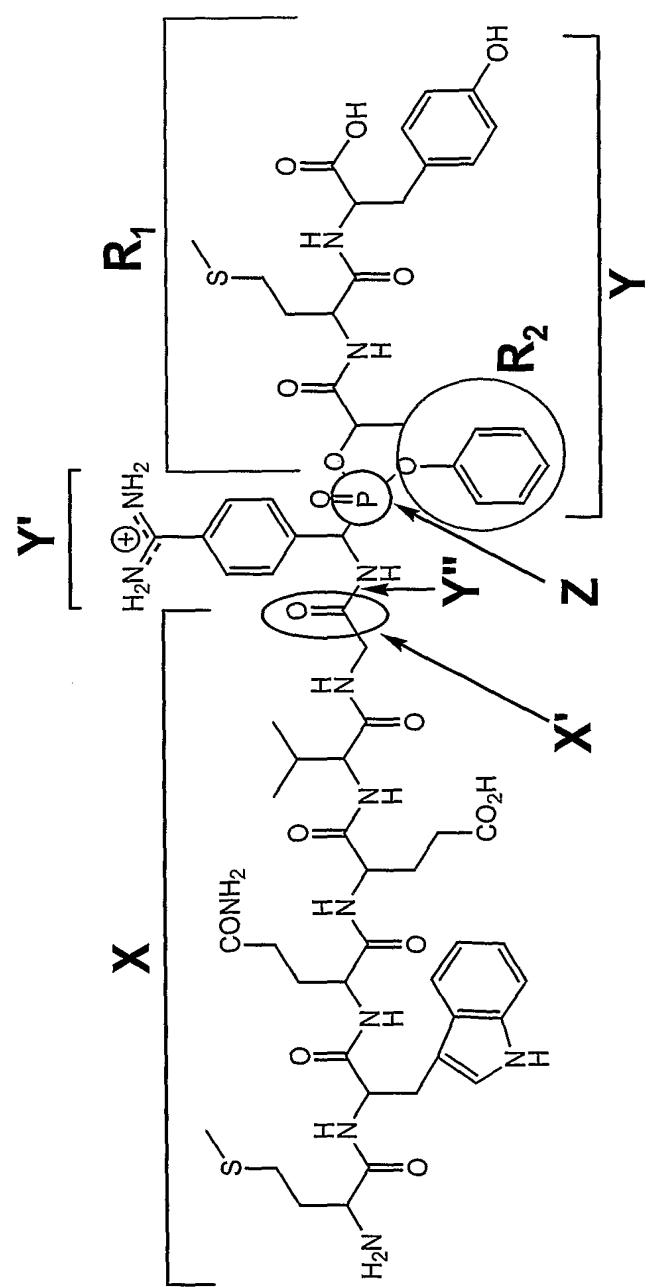


Fig 6

Fig 7

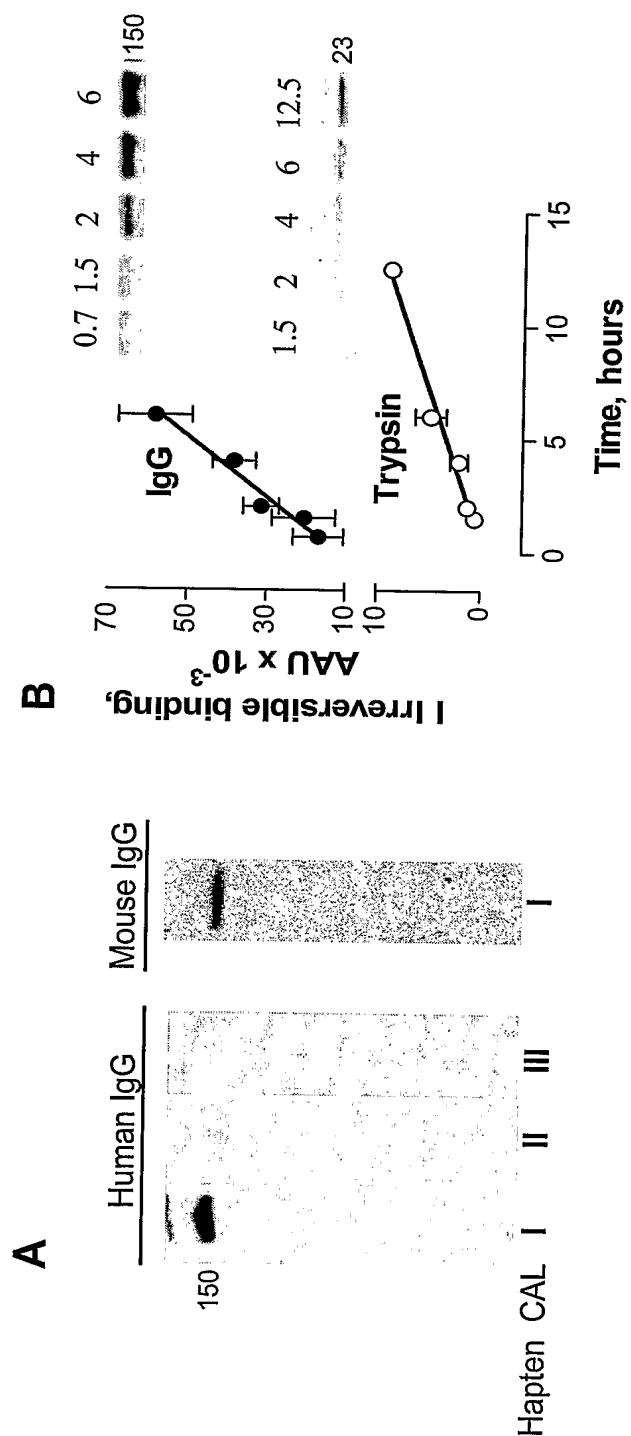
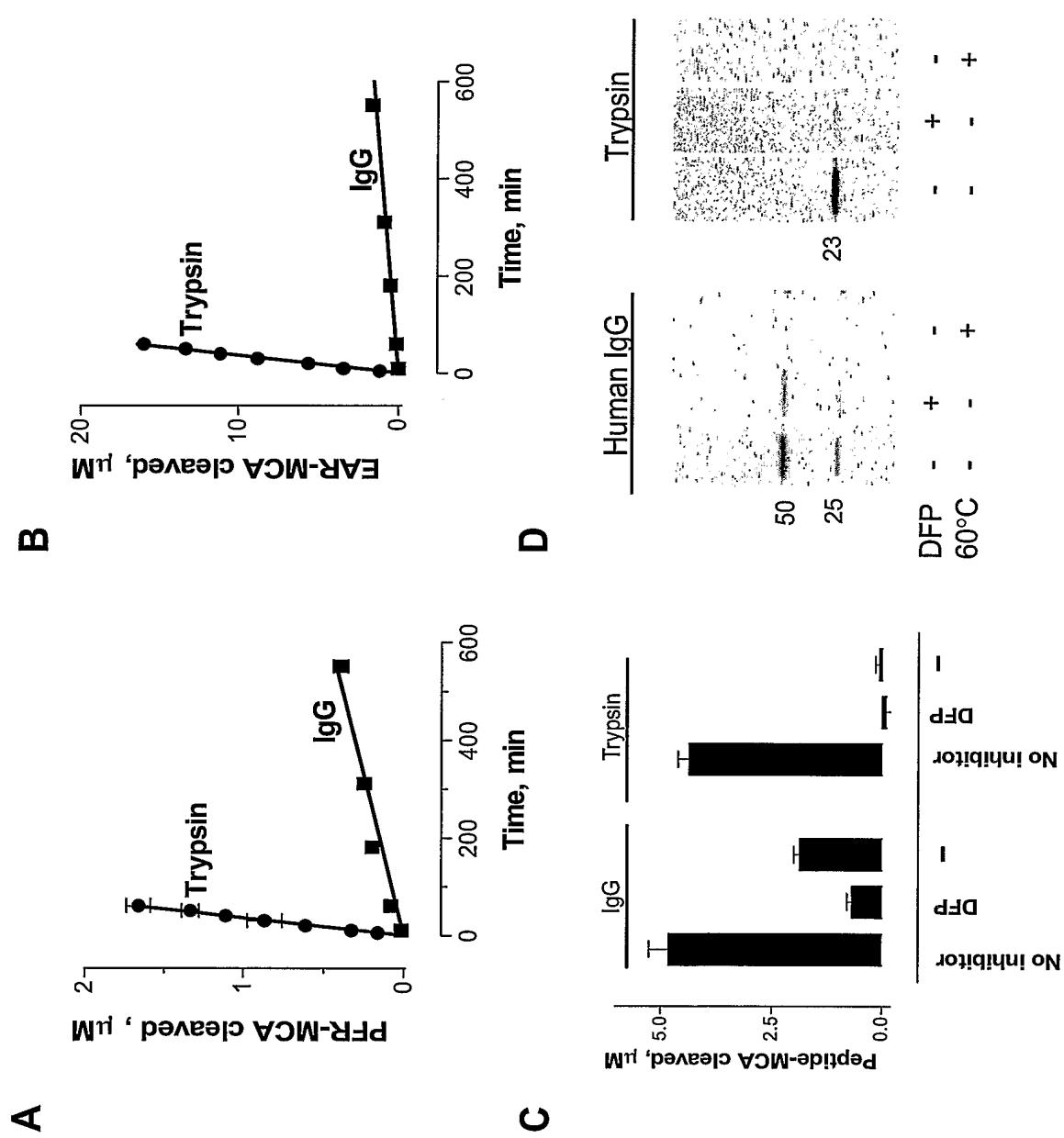


Fig 8



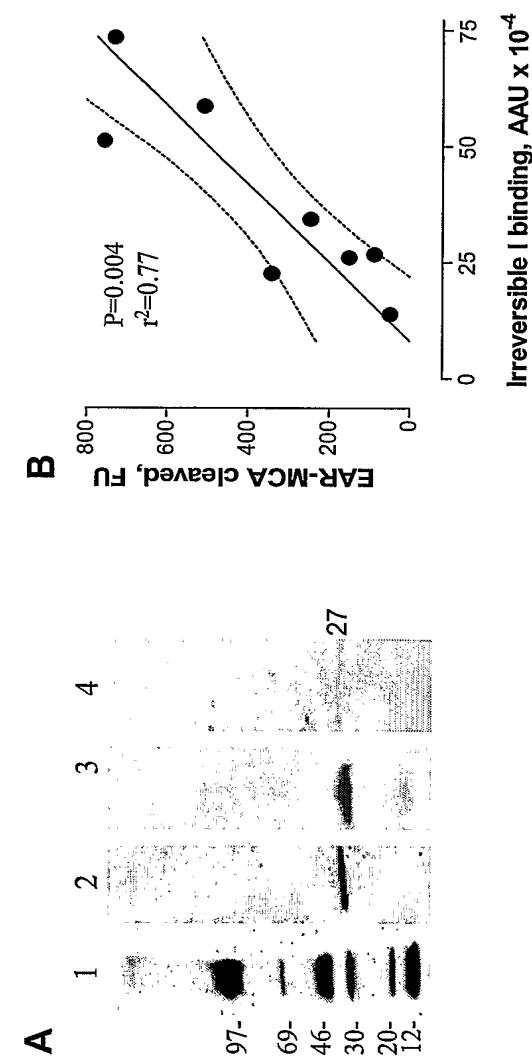


Fig 9

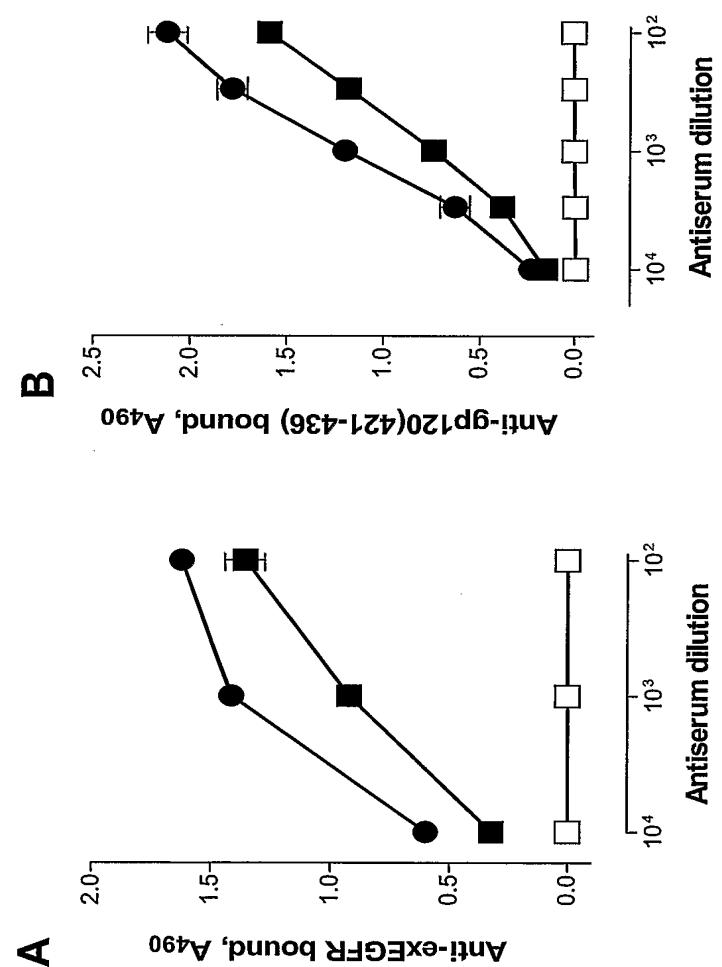
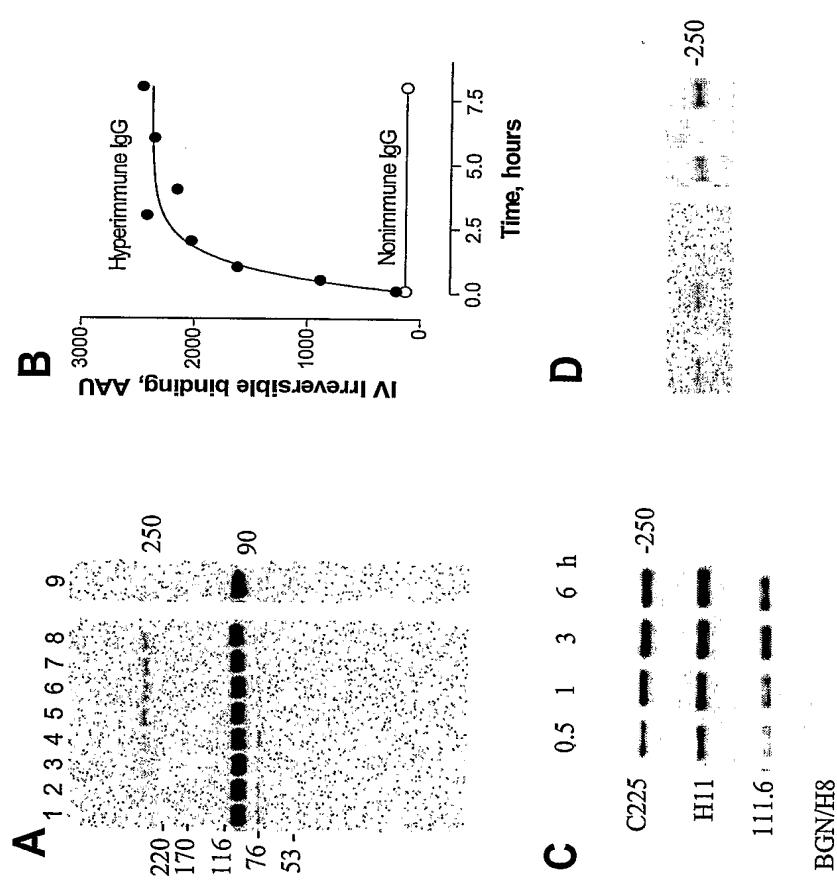


Fig 10

Fig 11



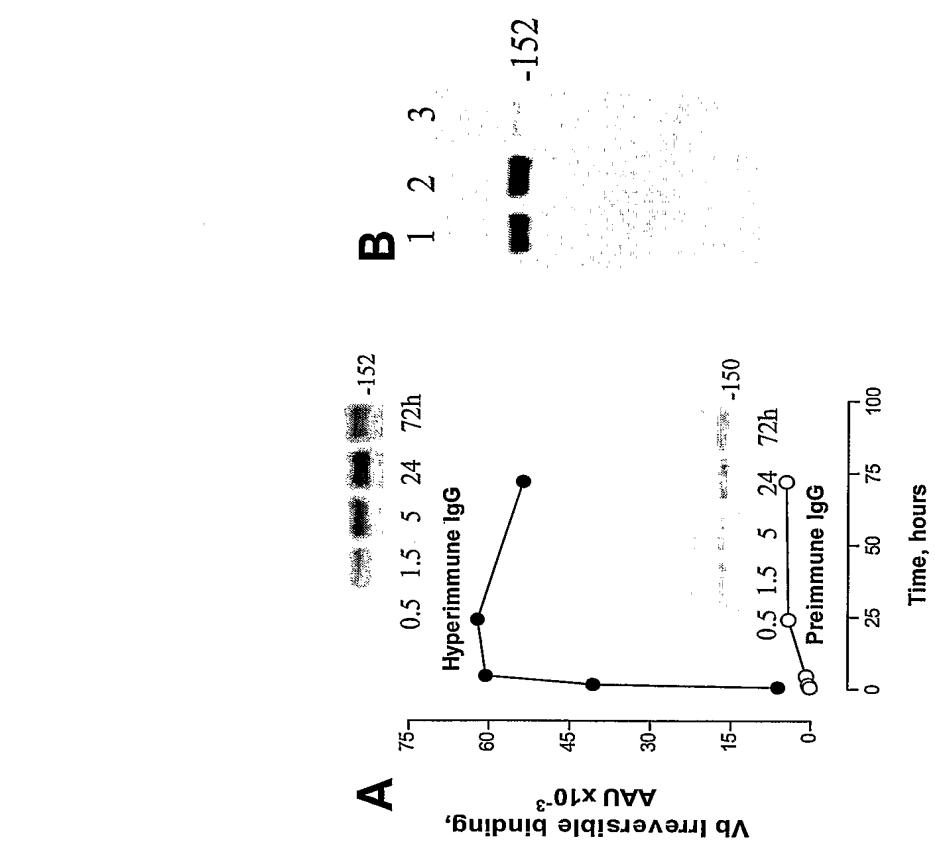
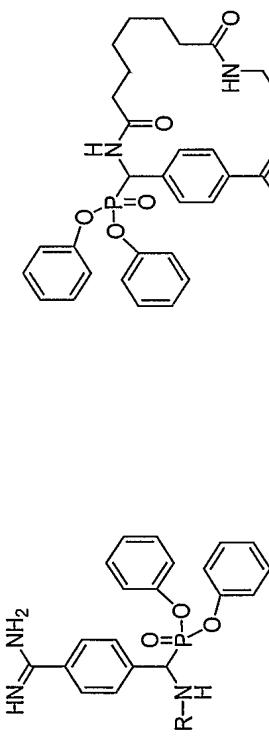


Fig 12

Fig 13

A



1: R = 6-(D-biotinamido)hexanoyl  
2: R = O-succinimidylsubertyl

R-His-Ser-Asp-Ala-Val-Phe-Thr-Asp-Asn-Tyr-Thr-Arg-Leu-Arg-Lys-Gln-Met-Ala-Val-Lys-Tyr-Leu-Asn-Ser-Ile-Leu-Asn-NH<sub>2</sub>

3: R = D-biotinyl

B

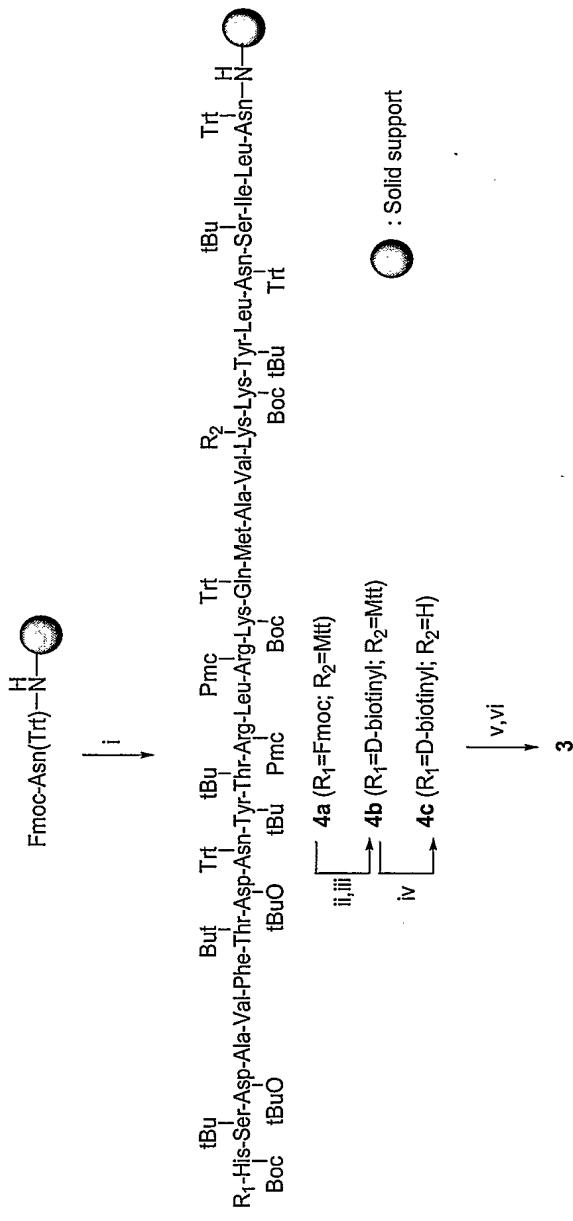


Fig 14

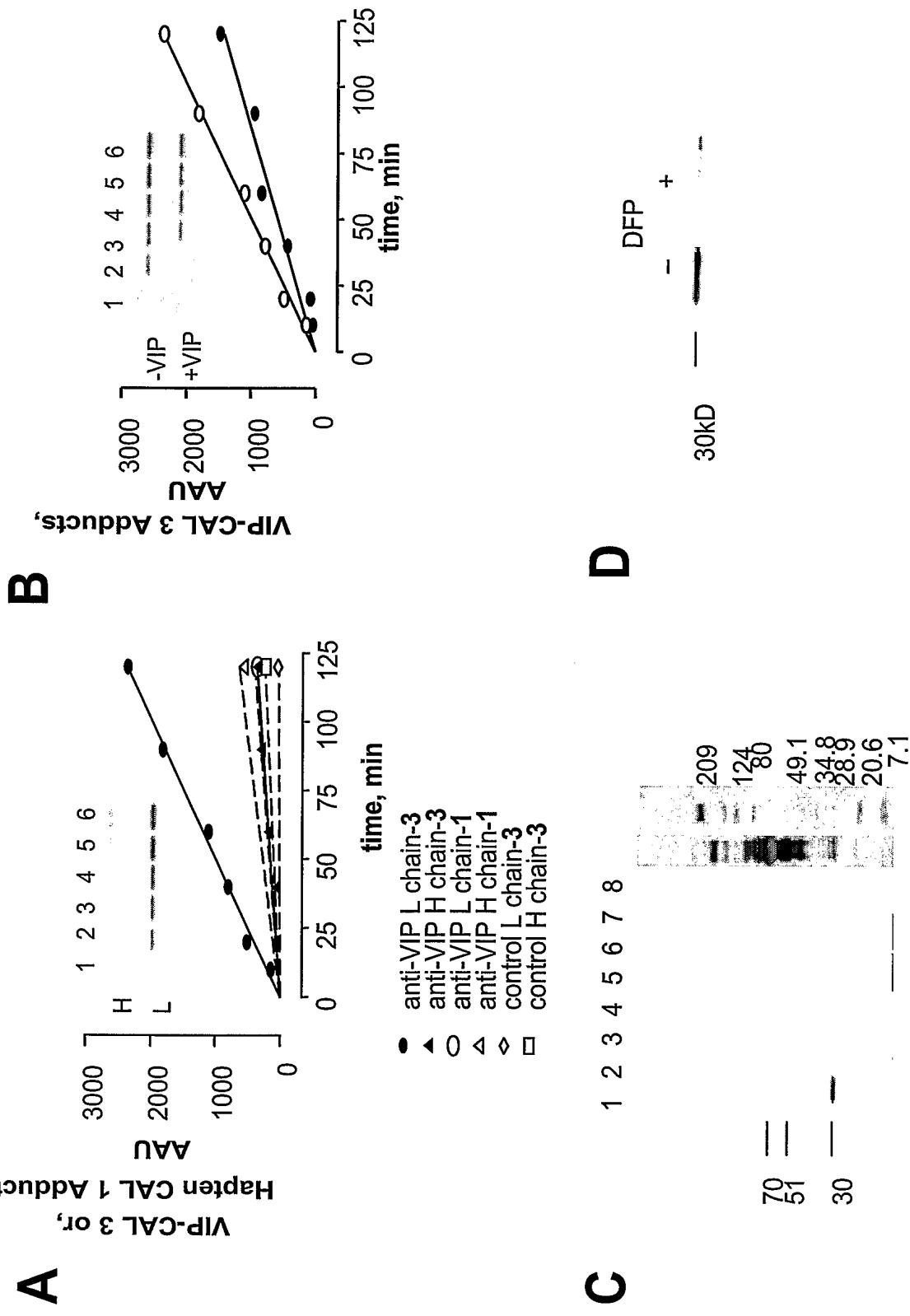


Fig 15

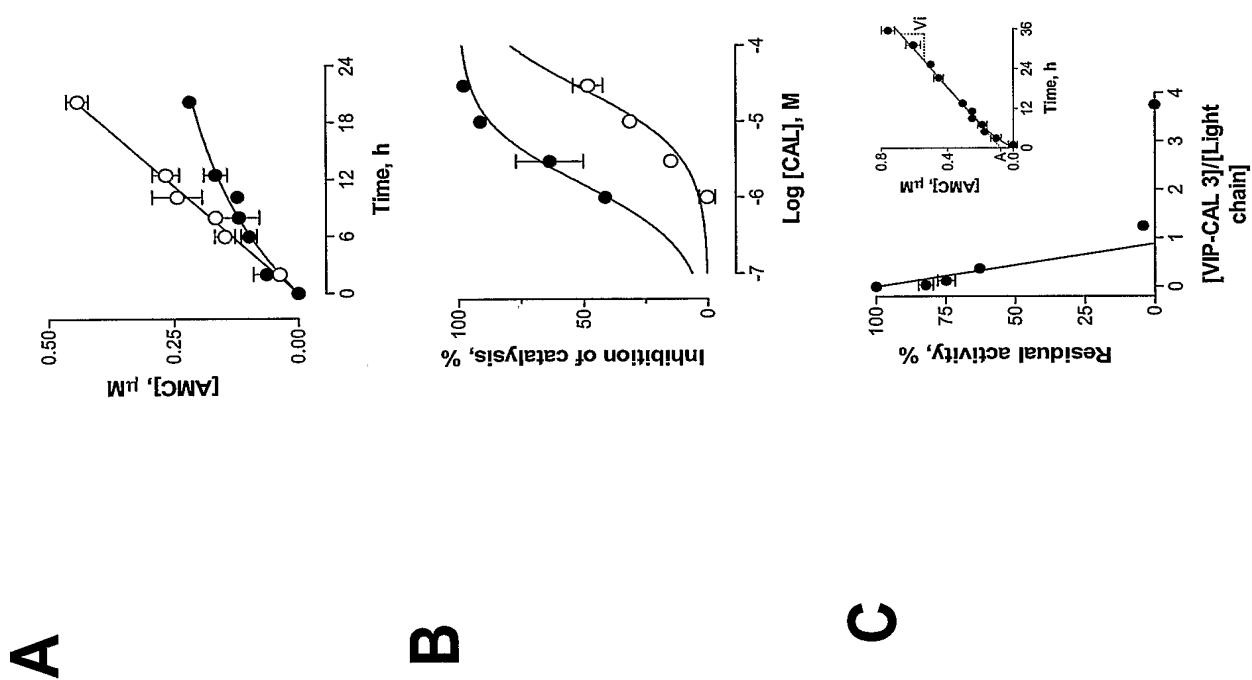
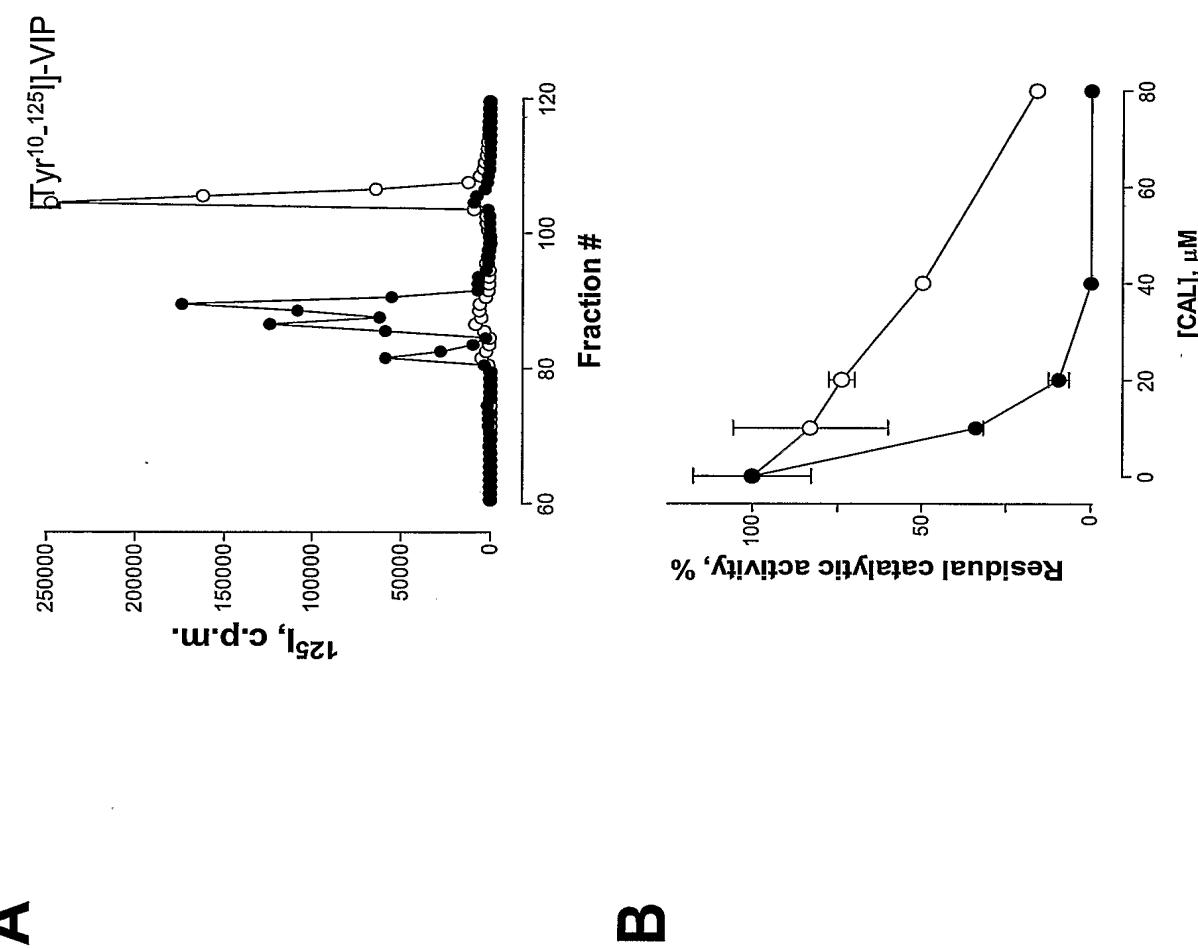


Fig 16



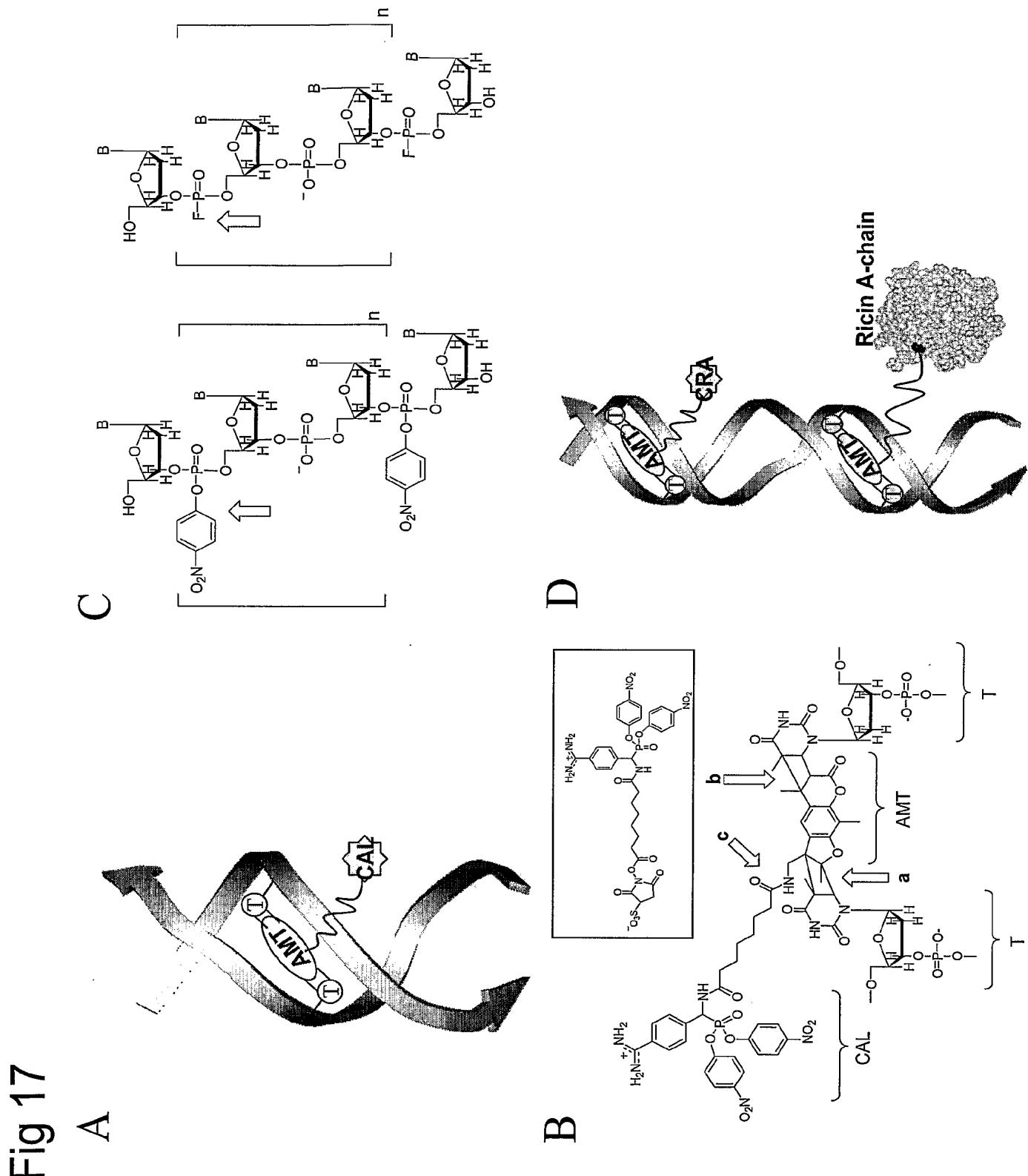
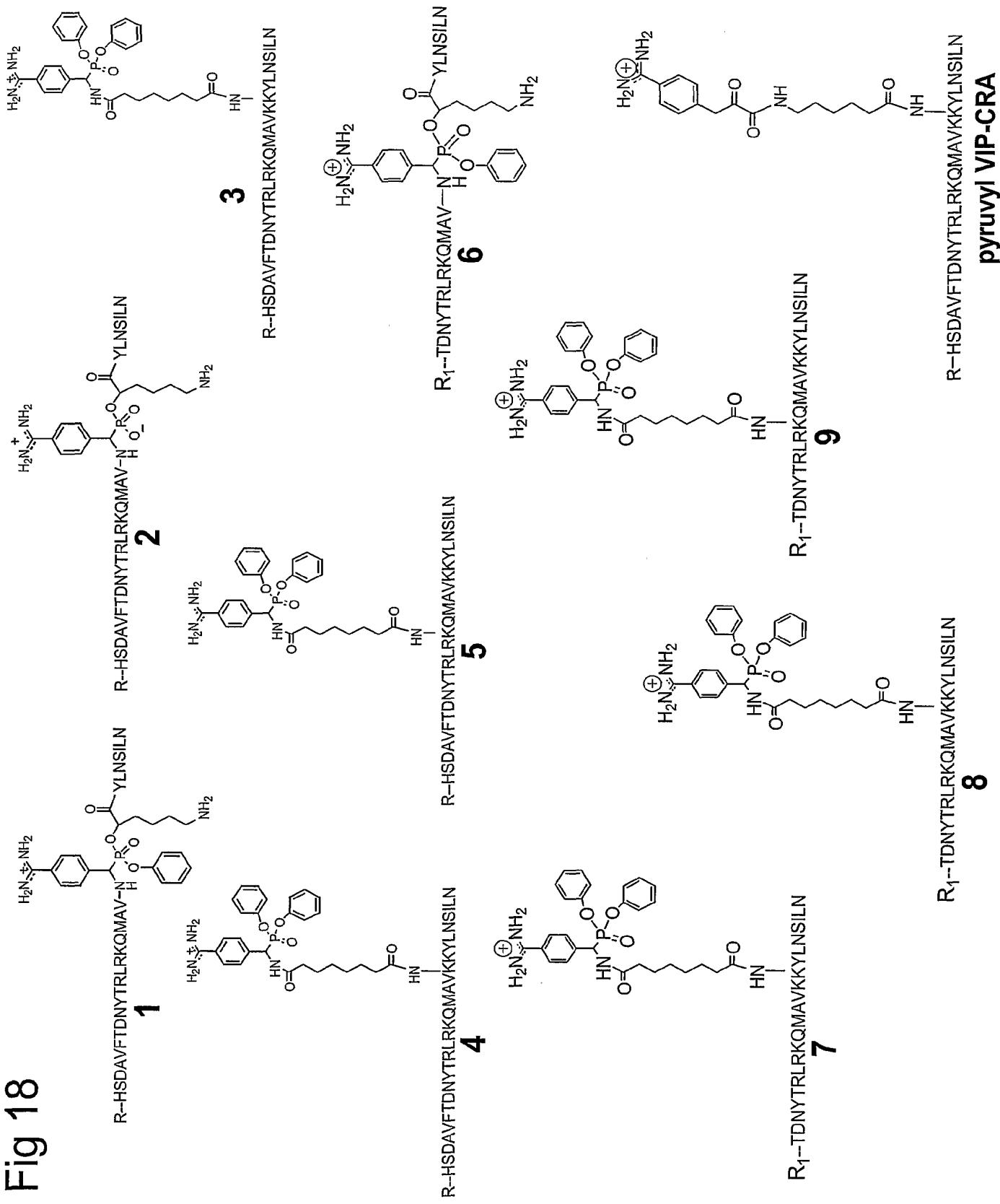


Fig 18



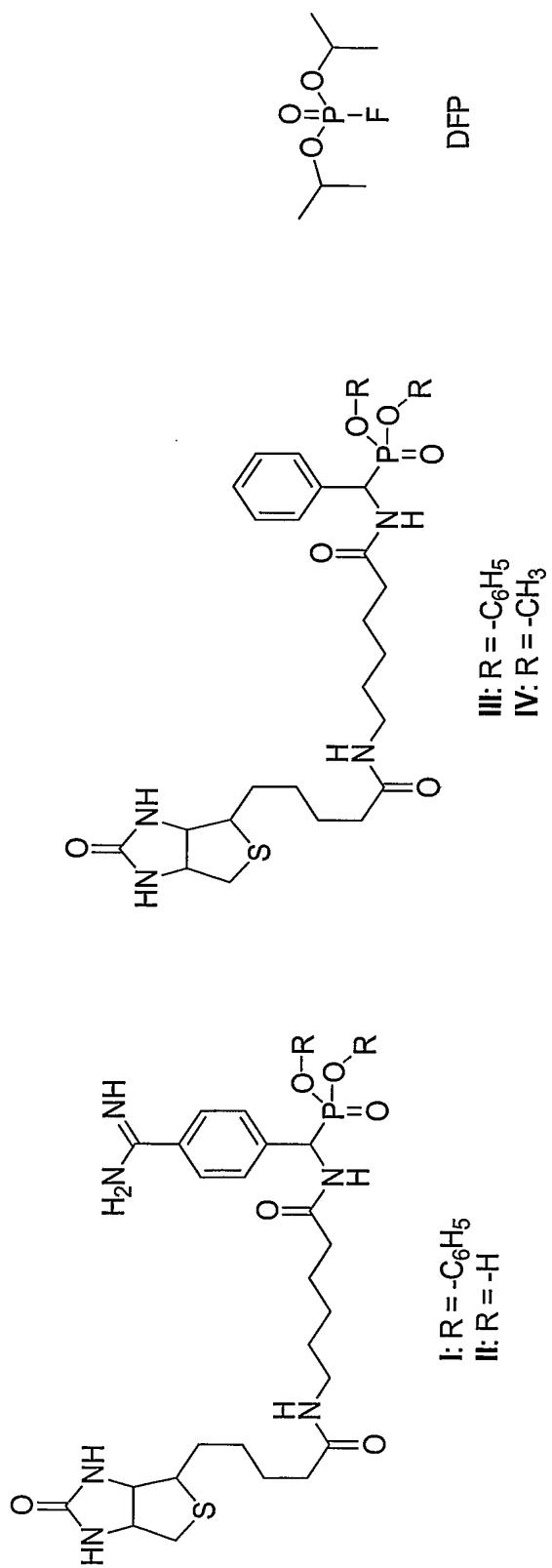


Fig 19

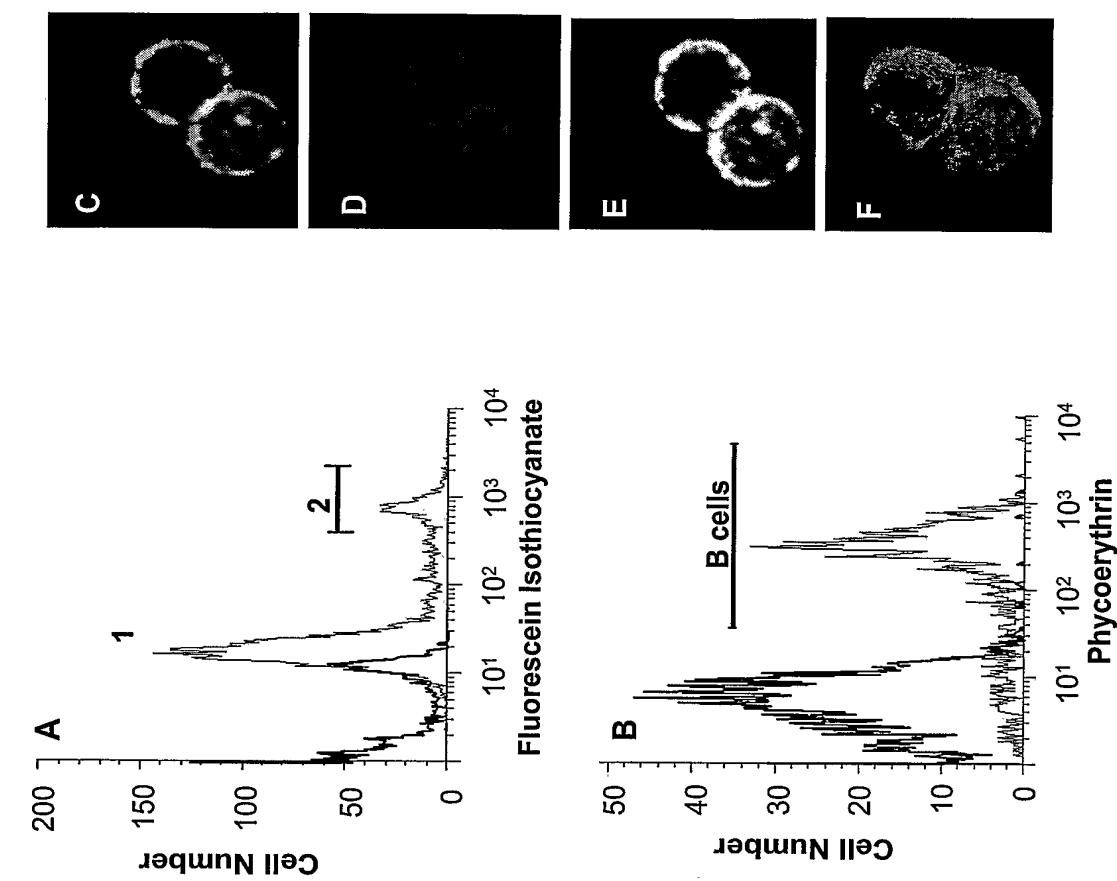
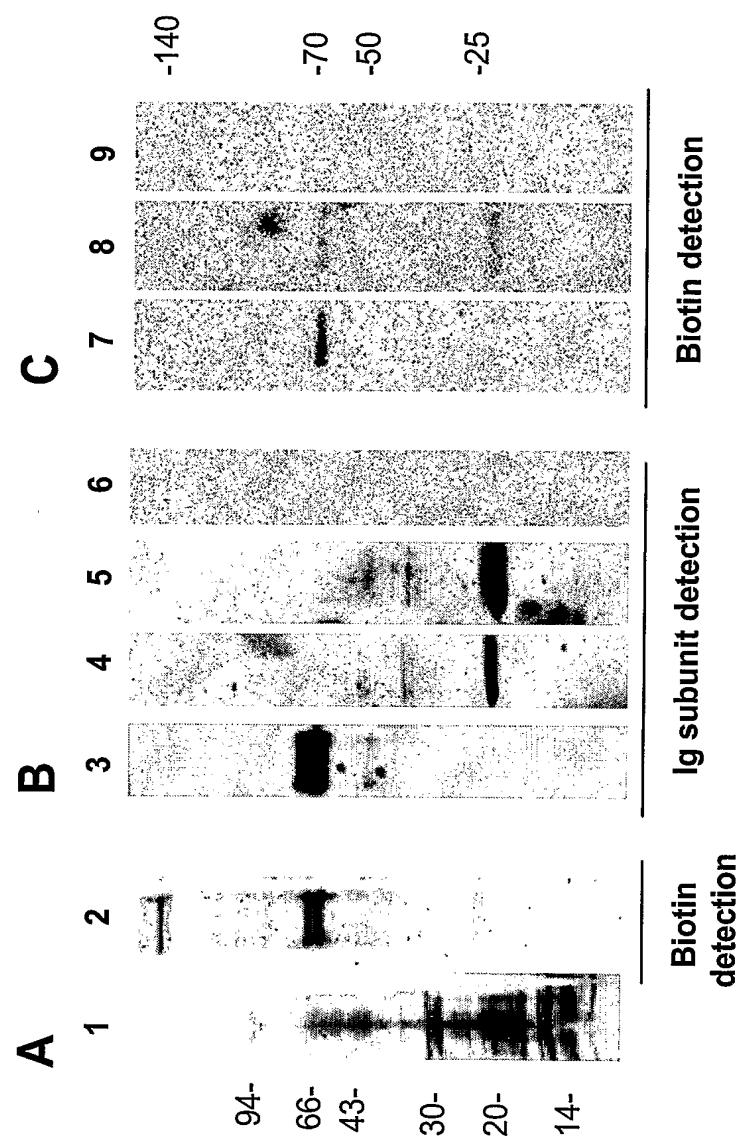


Fig 21



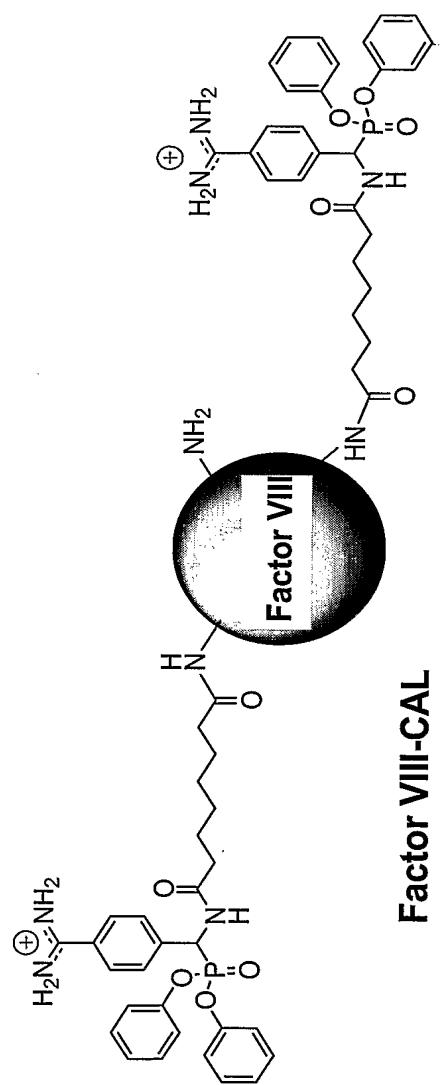


Fig 22

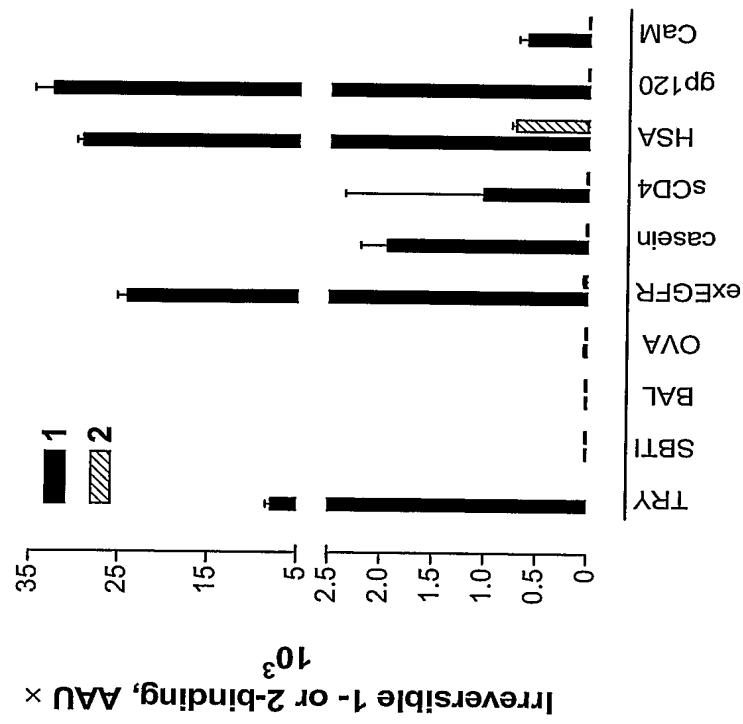
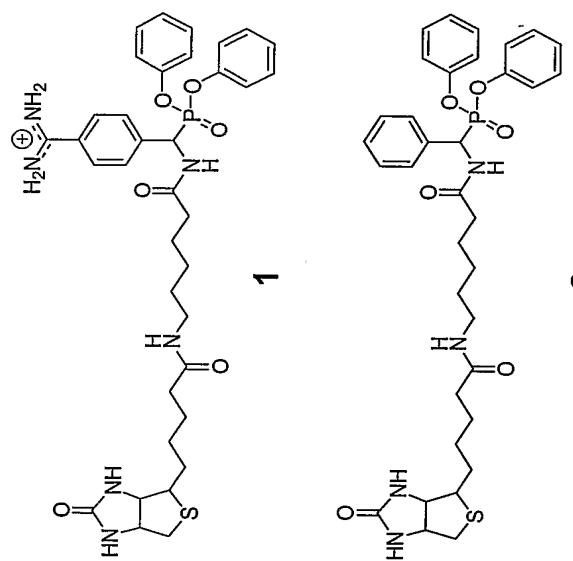


Fig 23

Fig 24

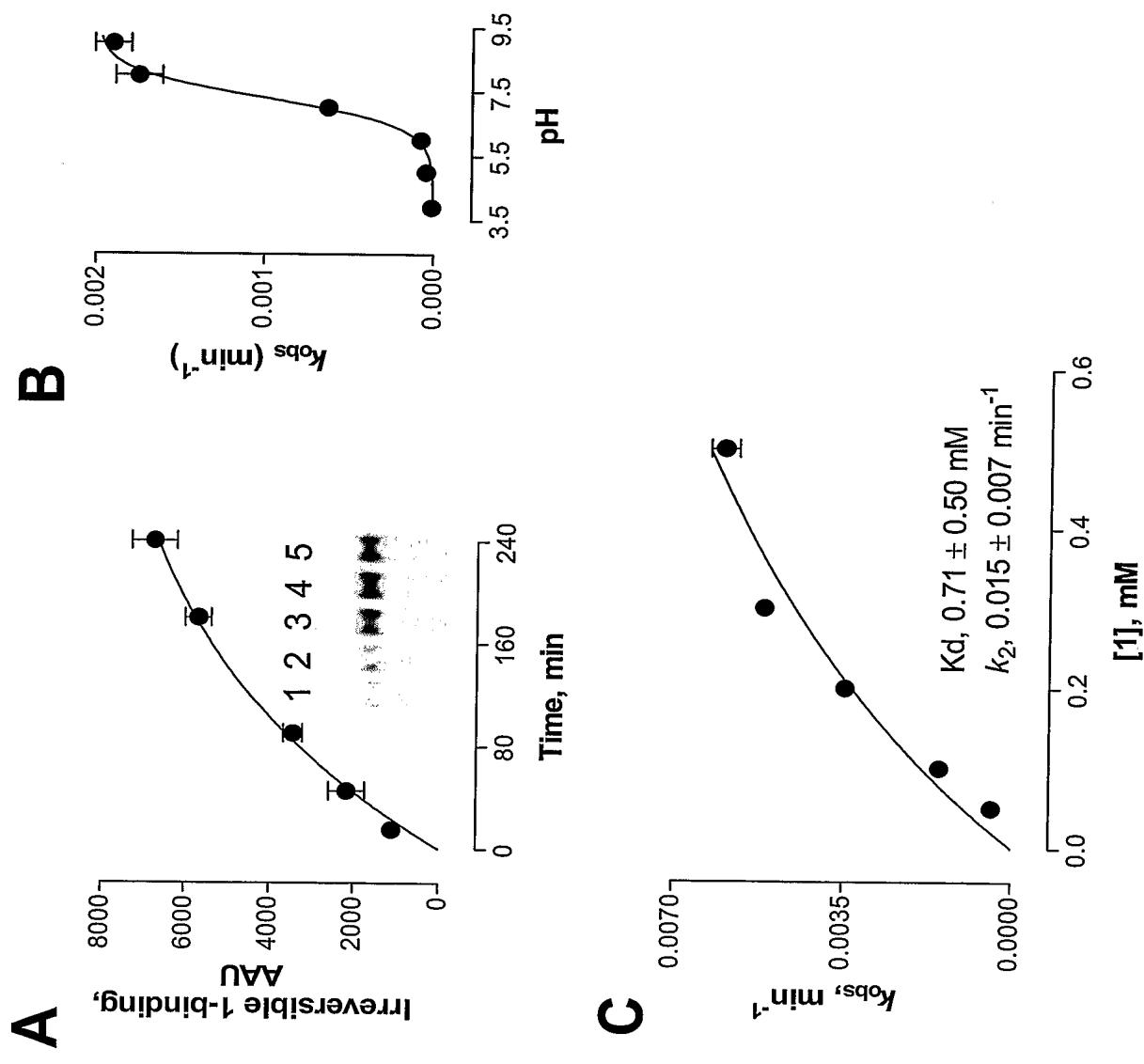


Fig 25

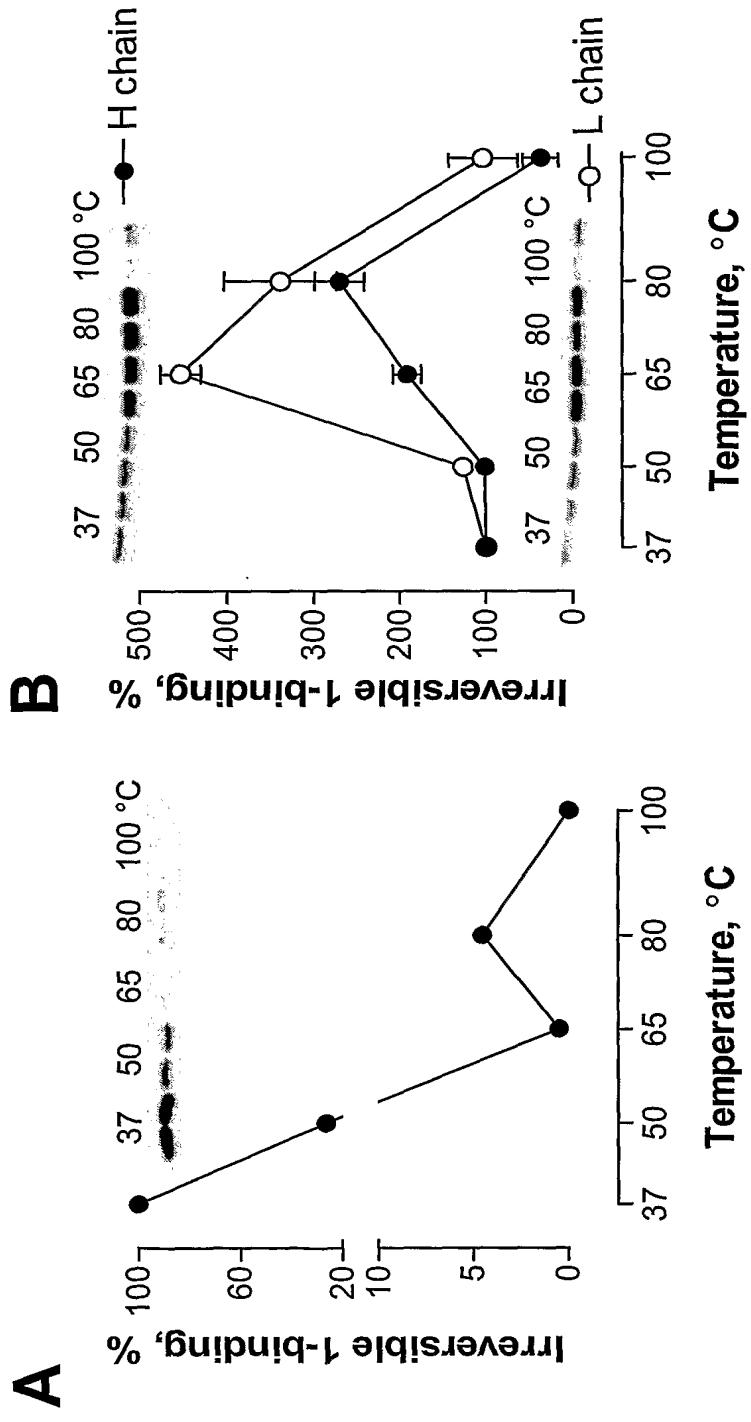
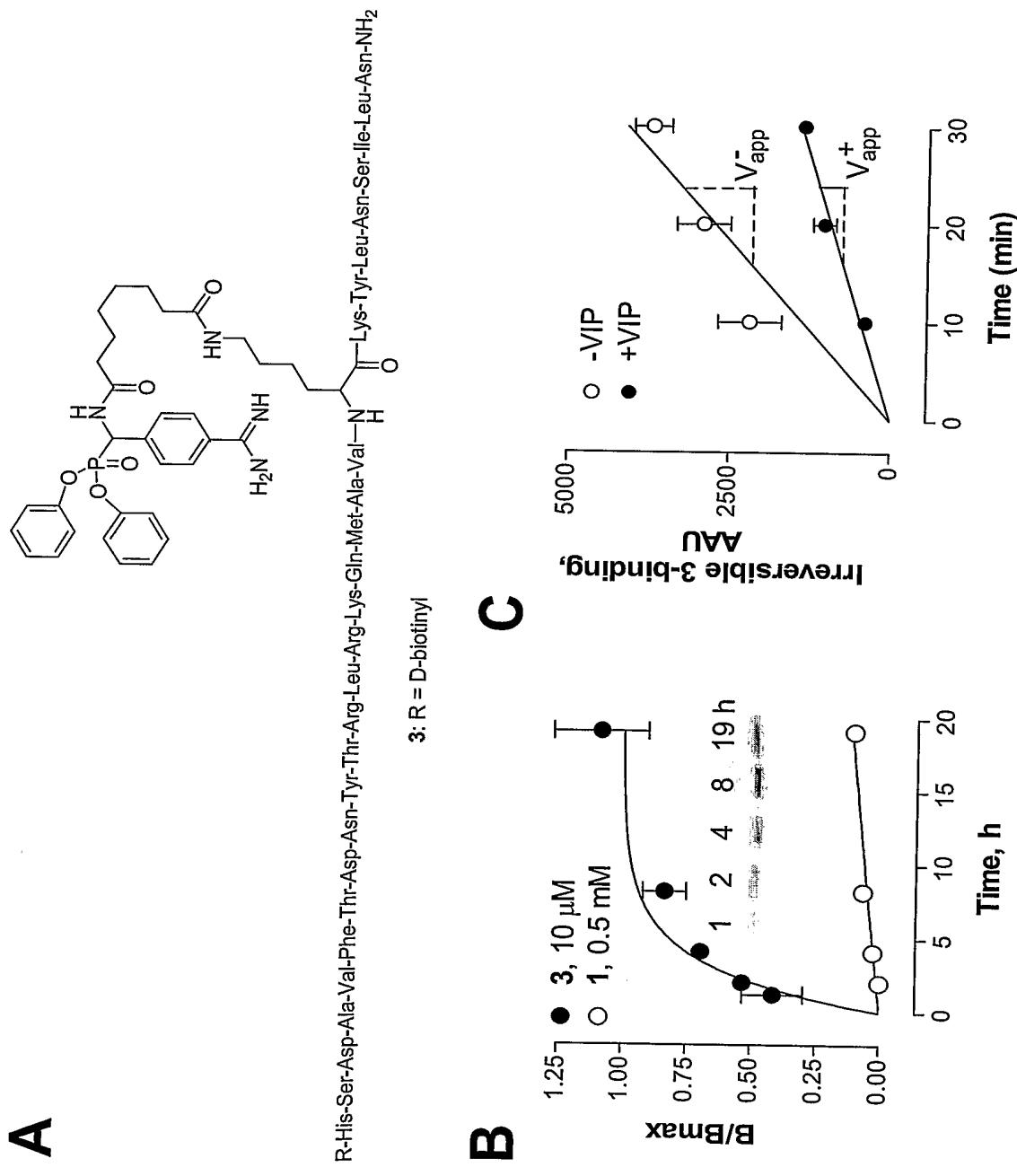


Fig 26



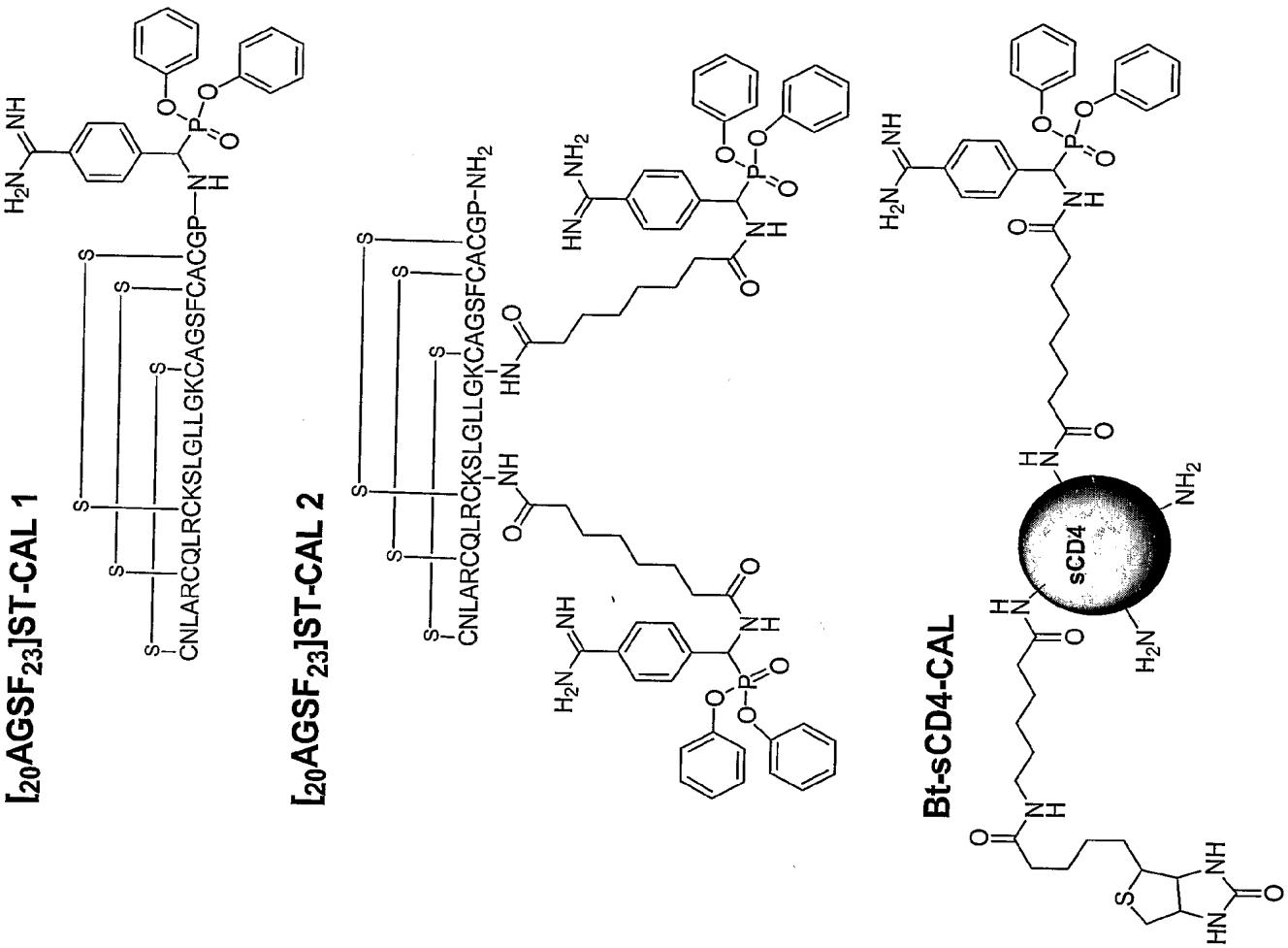
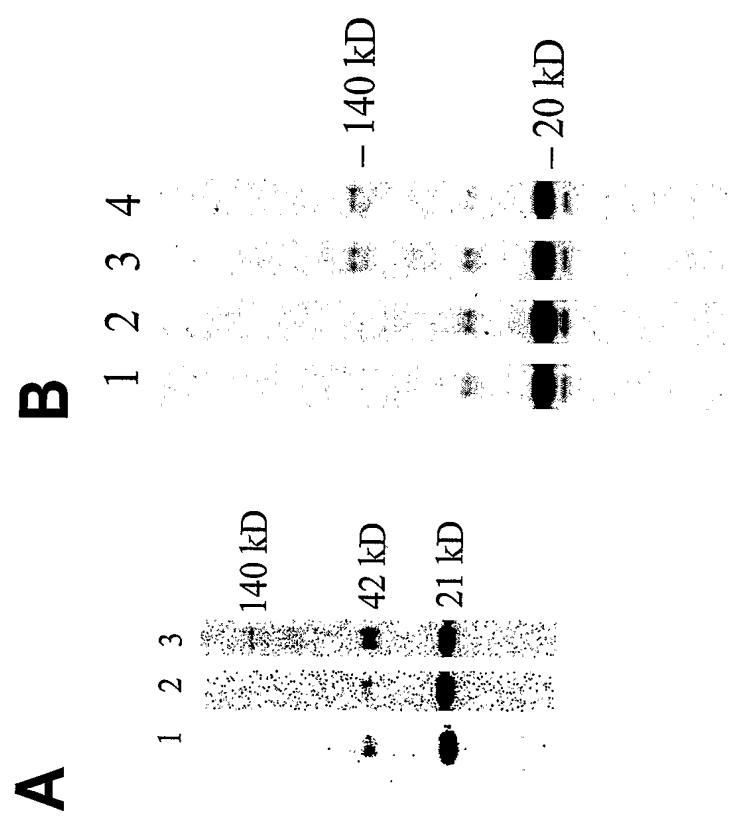


Fig 27

Fig 28



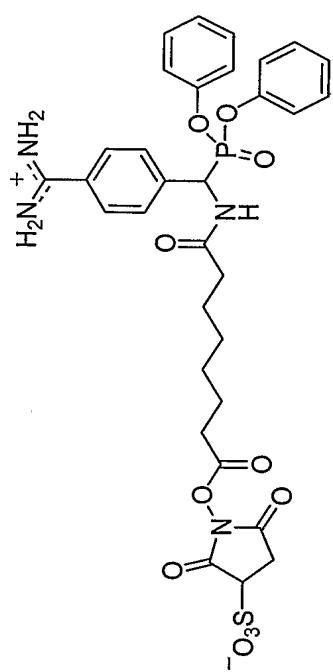
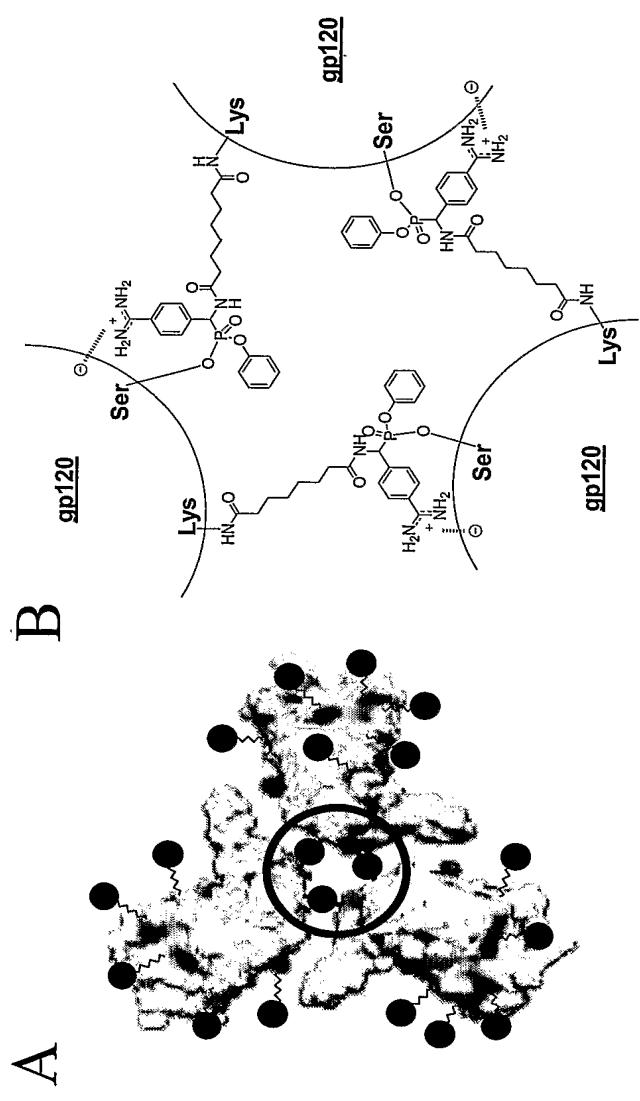


Fig 29

Fig 30



Fig 31



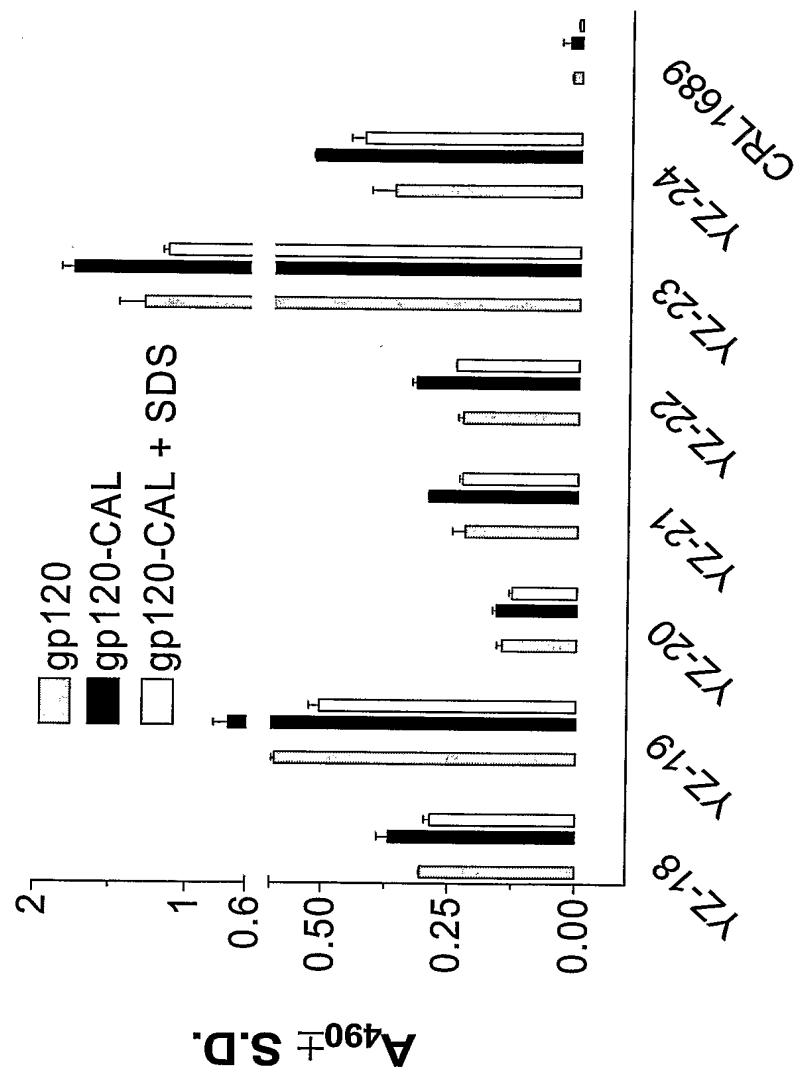


Fig 32

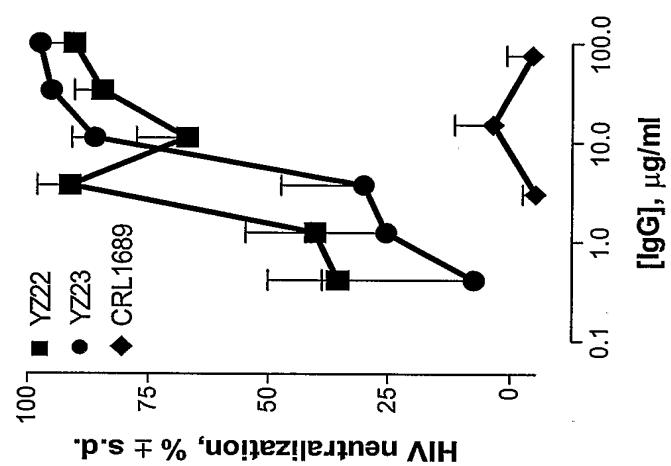


Fig 33